### U.S. Department of the Interior • U.S. Geological Survey

## MINERAL INDUSTRY SURVEYS

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#### **MOLYBDENUM IN MAY 1997**

Domestic production of molybdenum in concentrate increased 3% in May 1997 compared with that of the previous month and was 13% more than in May 1996, according to the U.S. Geological Survey. Producer molybdenum stocks in concentrate, oxide, and other product forms were 8,250 metric tons at the beginning of 1997 and 10,000 metric tons at the end of May 1997.

Included in this Mineral Industry Surveys are U.S. production, shipments, and stocks of molybdenum concentrates and materials, plus U.S. consumption by end use of molybdenum in the previous and current months. Also included are trade data for the previous two months. During the current month, Platt's

Metals Week U.S. monthly average price for molybdenum concentrate was \$4.960 per kilogram (\$2.250 per pound). The average price for dealer molybdenum oxide was \$9.920 per kilogram (\$4.500 per pound) and that for dealer ferromolybdenum was \$11.904 per kilogram (\$5.400 per pound).

For the week ending August 22, 1997, Metals Week U.S. average price for molybdenum concentrate was \$4.960 per kilogram (\$2.250 per pound). The average price for dealer molybdenum oxide was \$9.645 per kilogram (\$4.375 per pound) and that for ferromolybdenum was \$12.015 per kilogram (\$5.450 per pound).

TABLE 1 U.S. SALIENT MOLYBDENUM CONCENTRATE STATISTICS 1/

#### (Metric tons, contained molybdenum)

		1997			
	1996 p/	April	May	Year to date	
Production	55,950	5,465 r/	5,605	26,876	
Shipments: 2/					
Domestic	16,112	1,176	1,198	5,953	
Export	19,678	1,649	1,757	8,531	

p/ Preliminary. r/ Revised.

TABLE 2  $\hbox{U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS 1/IN 1997 } \\$ 

#### (Kilograms, contained molybdenum)

		Ferro	Ammonium	Molyb-		
	Molybdic	molyb-	and sodium	denum		
End use	oxides	denum 2/	molybdate 3/	scrap	Other 4/	Total
April:	_					
Steel:	_					
Carbon	_ 44,700 r/	W			3,190	47,900 r/
High-strength low-alloy	33,000 r/	8,330			(5/)	41,300 r/
Stainless and heat-resisting	_ 294,000 r/	26,100 r/			4,700	325,000 r/
Full alloy	_ 246,000 r/	157,000			2,330	406,000 r/
Electrical		W				W
Tool	_ 80,300	5,450 r/			2,310	88,100 r/
Cast irons (gray, malleable, and ductile iron)	1,670	57,300 r/			763	59,700 r/
Superalloys	65,000	W		W	38,600	104,000 r/
Alloys: (other than steels, cast irons, and superalloys)	_					
Welding materials (structural and hard-facing)		W		W	285	285
Other alloys 6/		W			6,130	6,130 r/
Mill products made from metal powder 7/					160,000	160,000
Cemented carbides and related products 8/					10	10
Chemical and ceramic uses:						
Pigments			957			957
Catalysts	77,300		W		14,900	92,200 r/
Other 9/	W		W		2,660	2,660
Miscellaneous uses:	_					
Lubricants					12,100	12,100
Unspecified uses:	892 r/	40,200 r/	75,900	47,500	(5/)	165,000 r/
Total	844,000 r/	294,000 r/	76,800	47,500	248,000 r/	1,510,000 r/
Stocks, April 30,1997	609,000 r/	219,000 r/	11,100	55,300	812,000 r/	1,710,000 r/
May:						
Steel:						
Carbon	45,500	W			3,190	48,700
High-strength low-alloy	41,600	8,590				50,100
Stainless and heat-resisting	277,000	27,100			4,700	309,000
Full alloy	242,000	171,000			2,330	416,000
Electrical		W				W
Tool	91,700	6,420			2,310	100,000
Cast irons (gray, malleable, and ductile iron)	1,670	56,400			763	58,900
Superalloys	74,000	W		34,500	41,700	150,000
Alloys: (other than steels, cast irons, and superalloys)	_					
Welding materials (structural and hard-facing)		W		(10/)	820	820
Other alloys 6/		W			6,150	6,150
Mill products made from metal powder 7/					195,000	195,000
Cemented carbides and related products 8/	- 				·	
Chemical and ceramic uses:	_					
Pigments	_		651			651
Catalysts	77,300		W		14,900	92,200
Other 9/	- 		W		2,670	2,670
See footnotes at end of table.						

<sup>1/</sup> Data are rounded to three significant digits.

<sup>2/</sup> Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

## TABLE 2--Continued U.S. REPORTED CONSUMPTION, BY END USES, AND CONSUMER STOCKS OF MOLYBDENUM MATERIALS 1/ IN 1997

#### (Kilograms, contained molybdenum)

End use	Molybdic oxides	Ferro molyb- denum 2/	Ammonium and sodium molybdate 3/	Molyb- denum scrap	Other 4/	Total
MayContinued:						
Miscellaneous uses:						
Lubricants					13,100	13,100
Unspecified uses:	892	54,500	75,900			131,000
Total	852,000	324,000	76,500	34,500	287,000	1,570,000
Stocks, May 31,1997	590,000	222,000	11,400	74,400	809,000	1,710,000

- r/ Revised. W Withheld to avoid disclosing company proprietary data; included in "Unspecified uses."
- 1/ Data are rounded to three significant digits; may not add to totals shown.
- 2/ Includes calcium molybdate.
- 3/ Data from the "Ammonium and sodium molybdate" category was erroneously published as "Other."
- 4/ Data from the "Other" category was erroneously published as "Ammonium and sodium molybdate."
- 5/ Revised to zero.
- 6/ Includes magnetic and nonferrous alloys.
- 7/ Includes ingot, wire, rod, and sheet.
- 8/ Includes construction, mining, oil and gas, metal working machinery.
- 9/ Includes ground coat, glass, silicone, electroplating, and drier in paint or related uses.
- 10/ Included in "Welding materials (structural and hard-facing)" of "Other" category.

 ${\bf TABLE~3} \\ {\bf U.S.~REPORTED~PRODUCTION~AND~SHIPMENTS~OF~MOLYBDENUM~PRODUCTS~1/} \\$ 

#### (Metric tons, contained molybdenum)

			1997	
	1996 p/	April r/	May	Year to date
Gross production	46,290	4,195	3,635	21,409
Internal consumption 2/	23,874	2,024	1,830	10,064
Gross shipments	24,085	2,130	2,281	11,432

p/ Preliminary. r/ Revised.

<sup>1/</sup> Data are rounded to three significant digits.

<sup>2/</sup> Includes molybdic oxides, metal powder, ammonium molybdate, sodium molybdate, and other.

# TABLE 4 U. S. EXPORTS OF MOLYBDENUM ORES AND CONCENTRATES (Including roasted concentrate), BY COUNTRY 1/

(Kilograms, contained molybdenum)

			1997	
Country	1996	March	April	Year to date
Australia	60,900	19,599	1,759	30,427
Belgium	12,400,000	1,659,459	1,890,459	6,057,392
Brazil	20,400			339
Canada	268,000	56,466	44,666	134,628
Chile	6,990,000	325,000	619,650	2,314,025
China	1,290,000	124,933	17,433	282,284
France	5,620			
Germany	505,000	138,691	144,691	343,228
India	58,600			
Italy	384,000	58,000		136,603
Japan	5,140,000	751,099	599,851	2,458,514
Korea, Republic of	10,200			
Mexico	5,500,000	250,003	350,002	1,315,944
Netherlands	5,890,000	3,100,919	1,593,919	7,290,005
Spain	19,900			28,875
Sweden	473,000	118,988	59,688	278,990
United Kingdom	6,010,000	291,745	174,543	1,860,506
Other		<u>-</u> -		9,539
Total	45,000,000	6,894,902	5,496,661	22,541,299

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.

Source: Bureau of the Census.

 ${\bf TABLE~5} \\ {\bf U.S.~EXPORTS~OF~FERROMOLYBDENUM,~BY~COUNTRY~1/}$ 

(Kilograms, contained molybdenum)

		1997				
Country	1996	March	April	Year to date		
Canada	252,000	26,400	41,977	138,466		
China				130		
Italy		3,170		3,169		
Japan	117,000	3,780	6,438	12,870		
Korea, Republic of	1,910	61		61		
Malaysia	37,200					
Mexico	117,000	22,900	9,815	50,494		
Singapore	53,900					
Spain	1,160					
Taiwan		2,650		3,551		
Venezuela	1,090					
Total	581,000	58,961 r/	58,230	208,741		

r/ Revised.

Source: Bureau of the Census.

 $<sup>1/\,\</sup>mbox{Data}$  are rounded to three significant digits; may not add to totals shown.

 $\label{table 6} TABLE~6$  U.S. IMPORTS FOR CONSUMPTION OF MOLYBDENUM PRODUCTS 1/

(Kilograms unless otherwise specified)

		1996  January-December			1997 January-April			
	J							
	Gross	Contained	Value (c.i.f.)	Gross	Contained	Value (c.i.f.)		
Material	weight	molybdenum	(thousands)	weight	molybdenum	(thousands)		
Ore and concentrates roasted	8,090,000	5,460,000	\$41,300,000	2,918,737	1,813,150	\$17,775,156		
Ore and concentrates other	35,600	21,100	173,000	476,049	246,836	1,798,464		
Molybdenum chemicals:								
Oxides and hydroxides	1,160,000	NA	8,850,000	667,070	NA	5,473,818		
Molybdates of ammonium	665,000	368,000	5,360,000	319,508	183,905	2,541,957		
Molybdates (all others)	82,500	36,400	506,000	69,591	45,661	424,250		
Molybdenum orange	1,840,000	NA	5,710,000	567,111	NA	1,862,833		
Mixtures of inorganic								
compounds								
Ferromolybdenum	7,870,000	4,960,000	55,100,000	1,954,099	1,235,734	13,237,721		
Molybdenum powders	125,000	110,000	3,470,000	33,928	28,420	1,211,589		
Molybdenum unwrought	91,100	84,400	2,380,000	107,738	103,290	1,404,156		
Molybdenum waste and scrap	693,000	640,000	9,720,000	169,509	165,140	2,620,560		
Molybdenum wrought								
Molybdenum wire	1,990	NA	320,000	745	NA	115,124		
Molybdenum other	3,870	NA	1,060,000	2,292	NA	321,308		
Total	20,700,000	11,700,000	134,000,000	7,286,377	3,822,136	48,786,936		

NA Not available.

Source: Bureau of the Census.

<sup>1/</sup> Data are rounded to three significant digits; may not add to totals shown.